

## Malignant cerebral glioma

### Modern radiotherapy can give good quality survival for six months

EDITOR—We wish to correct misinformation reported by Elizabeth Davies and colleagues in their study of survival after radiotherapy for malignant cerebral glioma.<sup>1</sup> Contrary to their suggestion in the acknowledgements, the study had not been supported by the Medical Research Council Brain Tumour Working Party. As the poor study design indicates, the study had never been officially submitted to the Medical Research Council and had therefore not been subjected to its rigorous protocol review process. For example, Davies and colleagues report that their criteria for assessment of treatment toxicity were derived in a “pragmatic fashion after discussion” by a “process of elimination,” without evidence from imaging to exclude tumour progression. This would be totally unacceptable, let alone publishable. The impression that the 105 patients represent an unselected consecutive series is difficult to believe as the seven centres should, over two years, have seen 400-800 eligible patients.<sup>2</sup>

The reported adverse prognostic factors in patients with high grade glioma have been known for over 18 years.<sup>3</sup> Although the authors appropriately conclude that severely disabled patients have a poor prognosis and may not be suitable for active treatment, the fact that they were considered for intensive treatment at all is surprising. Centres specialised in the treatment of patients with brain tumours would not have accepted patients with such a poor prognosis for high dose radiotherapy. Most of the patients also seemed to receive initial whole brain radiotherapy followed by a radiation boost to the tumour. Whole brain radiotherapy is nothing but toxic and has not been practised in specialist centres for many years.

Given the use of outdated and often inappropriate high dose, wide field radiotherapy and the flawed assessment of morbidity from treatment, the conclusion that radiation is of little value and simply results in adverse effects seems ill advised. High grade gliomas are among the most devastating of malignancies, with few useful treatment options. Modern radiotherapy, although not curative, offers a survival benefit of about six months,<sup>3</sup> and for most patients without functional impairment the quality of survival is good. Without com-

parative data on the quality of life, how can we decide whether prolongation of survival by six months with clinical deterioration in a small proportion of patients is worse than the alternative of progressive functional decline, which happens in all patients without treatment? Yes, we do need more effective treatments without morbidity, but to throw out a proved treatment on the basis of misinformation is a travesty to evidence based medicine, to which the *BMJ* claims allegiance.

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2 Bondy ML, Wrensch MR. Epidemiology of primary malignant brain tumours. In: Yung WKA, ed. *Cerebral gliomas*. London: Baillière Tindall, 1996:251-70.

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### Patients should be treated in specialist units

EDITOR—Conducting in depth interviews using a non-validated subjective rating scale in a selected group of patients with incurable malignancy who are receiving intensive palliative treatment is likely to yield a description of misery experienced by patients and families. Targeting patients treated outside cohesive specialist oncology units with defined information policies and support systems will highlight a range of dissatisfaction and misinformation. Elizabeth Davies and colleagues studied patients with high grade glioma from centres without dedicated neuro-oncology units,<sup>1</sup> and their results provide a good argument for a reorganisation of cancer services to improve cancer care, in which specialist units provide not only state of the art treatment but also, and more importantly, a package of care and support.

The treatment of patients with high grade glioma within our neuro-oncology unit, which Davies and colleagues chose not to examine, has long recognised all the

problems highlighted in their article.<sup>1</sup> Care and support are provided by a team headed by a neuro-oncology nurse specialist; in depth interviews with patients and their carers provide oral and written information and the opportunity to return for further interview. The isolation of patients and their families has long been recognised with the formation of relative as well as patient support groups. The severe tiredness experienced by patients after treatment, largely as part of the somnolence syndrome, has also been acknowledged, and specific support is provided by a nurse led telephone follow up system when symptoms are at their worst.<sup>2</sup> The need for subsequent support and care is organised through early referral to palliative care services and less reliance on hospital and doctor based follow up, which is being largely replaced by nurse led telephone follow up and free access to clinics and to medical and nursing staff.<sup>3</sup>

Patients with high grade glioma represent a group of patients with incurable malignancy suitable for palliative intervention, and the distressing nature of the range of neuropsychological impairment means that patients and families should be given particular sensitivity and support, which is not necessarily measured in financial terms and in any case is not costly. The summary of interviews gives a glimpse of the range of problems and misery that can to some extent be alleviated by an organised system of care and support.<sup>1</sup> Davies and colleagues provide us with an excellent argument for this group of patients to be treated in cancer centres with specialist units, where such support services are available.

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1 Davies E, Clarke C, Hopkins A. Malignant cerebral glioma. II. Perspectives of patients and relatives on the value of radiotherapy. *BMJ* 1996;313:1512-6. (14 December.)

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3 Brada M. Is there a need to follow-up cancer patients? *Eur J Cancer* 1995;31A:655-7.

### A relative's perspective

EDITOR—My late husband was interviewed by Elizabeth Davies and colleagues<sup>1 2</sup> and certainly experienced adverse effects after radiotherapy in the treatment of malignant cerebral glioma. No doubt the degree to which this can be seriously debilitating

depends somewhat on the particular part of the brain that has been subjected to radiation. Although my husband did suffer some neurodeficit, we were blessed in there being no personality changes and grateful for some extension of life; others may be less fortunate and hold a different view.

Editor's Choice asks: "So is the treatment worth it? Only the patients and their relatives can decide."<sup>3</sup> The medical profession will weigh up the costs, and our perspectives may well vary. For my husband and me each extra day that this treatment gave was valued without question. The disease was a shock and so unforeseen that any further time allowed a chance. For what? Mainly, to prepare for the changes that death brings but also to share some gracious times together in some real depth.

The tiredness afflicting many patients after radiotherapy is not like the common tiredness resulting from daily undertakings. It is a heavy pall on the being, a "twilight zone" which lessens its grip in stages. Its possible duration should not be underestimated, and the single kindest gesture to patients and families is to give adequate warning of this. Depression follows easily if a patient fails to feel some expected improvement: "I must be getting worse" is the natural response.

The extension of such life as can be provided is a balance between hope and emotional acceptance which eases, for most, the current inevitable outcome. It is palliative to the inner being of all those involved even if the body's stay is not assured. Who knows the real value at such times? Nevertheless, to witness the indiscriminate devastation of radiotherapy on such a fine mechanism as the brain leads one to question its continuing use as the most appropriate treatment. Will research come up with some more subtle answer in due course?

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- 2 Davies E, Clarke C, Hopkins A. Malignant cerebral glioma. II. Perspectives of patients and relatives on the value of radiotherapy. *BMJ* 1996;313:1512-6. (14 December.)
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### Patients' awareness of prognosis may be confounded by successful coping mechanisms

EDITOR—In their interview study of patients with malignant cerebral glioma Elizabeth Davies and colleagues found that only a quarter (19/75) were fully aware of their prognosis.<sup>1</sup> This result is not in line with our findings from a recent, similar study.<sup>2</sup> As 11 of the 19 patients whom we could evaluate (not 30 as incorrectly stated by Davies and colleagues) spontaneously associated their disease with death—typically stating: "I hope I'll get another two years"—we concluded that most patients seemed to be aware of the gravity of their situation.

This discrepancy in found awareness may be attributable to different interpretation criteria. Patients who conveyed some fear of

dying but also that they had some reasonable chance of being cured were classed by Davies and colleagues as being partly aware. This may be correct. It may also indicate, however, that these patients were quite aware of the severity of their situation but at the same time were dealing with the psychological threat.<sup>2</sup> This phenomenon is known as middle knowledge: patients are aware but seem to be unaware at the same time.<sup>3</sup>

For example, one of us (PS) recently talked with a man with widespread cancer. In contrast to his behaviour in earlier encounters he made no attempt to raise himself from his wheelchair. PS commented on this, and he replied forcefully: "Of course I can't walk any longer! If you don't eat porridge in the mornings you don't get enough energy. Yesterday I ate none, but this morning I was actually able to eat a couple of spoonfuls, so I think it's getting better." Later, during the same conversation, PS asked him about the outcome of the x ray examination he had undergone two days earlier. He replied more laconically: "It detected metastases all over the skeleton."

This type of contradiction is everyday clinical reality. We think that this patient was aware of his grave situation, but his awareness was dissociated from its personal impact. The patient perceived correctly, but the perception was disavowed of its meaning.<sup>4</sup> By this mental manoeuvre he created hope.<sup>2</sup> If this patient was included in a study would he be regarded as fully or partly aware? If he were considered to be fully aware his awareness might be overestimated. But if he were considered to be partly aware the risk of underestimating his awareness might be even greater, his awareness being confounded with processes aimed at psychological survival. In other words, instead of estimating awareness we may in fact be estimating the extent of successful coping.

It is up to all of us to sharpen our reflections and definitions on this issue.

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- 1 Davies E, Clarke C, Hopkins A. Malignant cerebral glioma. II. Perspectives of patients and relatives on the value of radiotherapy. *BMJ* 1996;313:1512-6. (14 December.)
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- 3 Weisman AD. *Coping with cancer*. London: Tavistock Publications, 1971.
- 4 Basch FM. The perception of reality and the disavowal of meaning. In: *The annual of psychoanalysis*. Vol 11. New York: International Universities Press, 1983:125-53.

### Modern radiotherapy techniques are needed to spare normal brain tissue

EDITOR—The two papers by Elizabeth Davies and colleagues highlight the distressing aspects of malignant gliomas,<sup>1,2</sup> including the difficulties faced by clinicians trying to balance the increased survival benefit from a higher radiation dose<sup>3</sup> against morbidity related to treatment. For radiotherapists managing treatment in these patients the first paper adds considerable

weight to the argument for using modern radiotherapy techniques to spare normal brain tissue.

This study confirms the view that radiotherapy generally prolongs survival but does not necessarily improve the patient's functional and neurological state.<sup>1</sup> Deterioration occurred in 27% of patients, just as in the Medical Research Council study evaluating radiotherapy doses.<sup>3</sup> In most patients the initial phase of treatment used large parallel opposed fields up to a dose of 40 Gy, and this was followed by a smaller volume boost, but these details are not complete.<sup>4</sup> A better approach is to treat the tumour with an appropriate margin, as imaged by computed tomography. This is equally effective in terms of tumour control and should now be regarded as standard treatment. Although we agree with the general conclusions of Davies and colleagues that the incidence of deterioration relates to higher dose and volume of brain irradiated, this is not a new concept. Dose-volume effects for late radiotherapy changes in the central nervous system are well recognised, ranging from necrosis to subtle neuropsychometric impairment.<sup>5</sup>

The second paper of Davies and colleagues tries to describe the balance of quality and quantity in the survival of patients with glioma, and they highlight the distress experienced by patients and relatives.<sup>2</sup> Despite the comparatively poor outcome in terms of survival and function, few patients regretted having radiotherapy, and the potential benefit of treatment to fit young patients whose survival was 40% at two years was understated.<sup>1</sup> The effect of being unable to drive was not assessed. This may have a profound effect on daily living and is a feature of the condition, not the treatment. Patients in the study were often unaware of the full significance of their prognosis. The authors concluded that this was largely because the professional or relative was protecting the patient from distressing information. However, patients can choose what information they want. Although patients with severe confusion were excluded, more subtle impairment of cognitive function often confounds detailed discussion.

We agree with the key messages, especially that techniques sparing normal brain tissue from radiation should be considered.<sup>1</sup> It is time for the NHS to acknowledge the need to provide modern radiotherapy technology to achieve this objective.

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- 1 Davies E, Clark C, Hopkins A. Malignant cerebral glioma. I. Survival, disability, and morbidity after radiotherapy. *BMJ* 1996;313:1507-12. (14 December.)
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### Authors' reply

EDITOR—The past chairman of the Medical Research Council Brain Tumour Working Party gave his initial support to our study, and the working party allowed us to include 25 patients who were recruited to the council's trial of adjuvant chemotherapy. We believe it to be usual to thank colleagues for help, without implying their approval of the study design, results, or conclusions.

The Medical Research Council Brain Tumour Working Party describes our study design, reviewed and supported by the Cancer Research Campaign, as poor. The working party shows an unusually narrow view of scientific activity, not understanding how to address research questions outside a trial design or the need to study patient outcome in everyday practice. Trials showing that radiotherapy prolongs survival by six months failed to assess quality of life,<sup>1</sup> leaving a legacy of doubt and disagreement about best practice.<sup>2</sup> Our study aimed to address these doubts by describing the quality of life and effects of radiotherapy in patients treated at six well respected London hospitals that provide neurosurgical and radiotherapy services to most of the North Thames region.

The working party asserts that we recruited too small a proportion of eligible patients when, in fact, we made it clear that centres were included in a stepwise fashion over two years. Only at the end of the study were we recruiting from all six centres. The working party also raises the issue of selection. We can state confidently that we made no selections from the patients about whom we were informed. There is, of course, always the possibility that we were not offered patients for recruitment to the study. Even randomised trials succeed in recruiting only a proportion of those eligible. However, the survival curve for our patients is so similar to those previously published that we believe we have recruited a representative sample of patients with malignant glioma.

For the working party to imply that our findings are irrelevant because "whole brain radiotherapy...has not been practised in specialist centres for many years" shows a surprising lack of awareness of what is happening in other treatment centres. The group criticises the absence of imaging evidence to exclude tumour progression in our assessment of adverse effects, although early delayed reactions to radiotherapy are indistinguishable from tumour recurrence on imaging.<sup>3</sup> We make no apologies for the clinical evaluation, in association with a radiotherapist, of deterioration, and we have made clear the logic—patients whose condition improves or who survive for six months are unlikely to be experiencing tumour recurrence.

Douglas Guerrero and colleagues say that our interview method used a "non-

validated subjective rating scale." Semistructured interviews that follow developmental work and pay attention to interrater reliability are used widely in disciplines other than medicine.<sup>4</sup> How, other than by listening to patients and relatives, is it possible to represent the kinds of experience and reflections described by Julia Chappell?

We regret misquoting the denominator in the study by Pär Salander and colleagues. Their results and ours underline the complexities of understanding patients' and relatives' ways of coping with threatening information.

Finally, Guerrero and colleagues criticise us for choosing not to study patients from their specialist neuro-oncology centre at the Royal Marsden NHS Trust. We must remind Michael Brada, the head of the centre and one of Guerrero's colleagues, that it was his written preference, and not ours, that the centre's patients were not included. We do, however, support the view that care should be better integrated. We have convened a multidisciplinary working group to develop evidence based clinical guidelines for practice covering many psychosocial aspects of care.<sup>5</sup> Recognising that research findings may not immediately translate into everyday practice is the first step in improving the quality of care for all patients. All of us concerned in the management of patients with malignant glioma are determined to do this.

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- 1 Walker MD, Alexander E, Hunt WE, MacCarty MS, Mahaley MS, Mealey J, *et al.* Evaluation of BCNU and/or radiotherapy in the treatment of anaplastic gliomas. *J Neurosurg* 1978;49:333-43.
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Anthony Hopkins died on 6 March 1997. An obituary will appear in a future issue.

### Presentational skills are taught in some hospitals

EDITOR—Bernard Dixon's comments on the poor presentational skills of young scientists are apposite but do not address a key issue.<sup>1</sup> Given that presentations are so important in medicine and science, why is little teaching provided on how to give them? At a recent lecture to about 40 junior doctors and scientists I asked how many of them had received instruction on how to give a presentation. Only one, an overseas doctor, had done. This was not a surprise. Presentational skills are

not included in either undergraduate or postgraduate medical curriculums,<sup>2,3</sup> and few consultants and senior scientists have had the necessary training to teach such skills to their juniors. Moreover, many doctors and scientists seem to regard the delivery of a presentation as a personal matter, and, as Dixon notes, constructive criticism of other people's performance is rarely offered or received willingly.

Future developments, particularly in medical education, clinical audit, and research, are likely to make presentations even more important. At Harefield Hospital video demonstrations on presentational skills have been introduced into the postgraduate education programme, junior doctors receive informal feedback on presentations they give at departmental meetings, and workshops on presentational skills are conducted periodically for the trust's staff. We believe that this approach will bring appreciable benefits to all concerned.

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- 1 Dixon B. "Sorry, you won't be able to see this ...." *BMJ* 1996;313:1407. (30 November.)
- 2 General Medical Council. *Tomorrow's doctors. Recommendations on undergraduate medical education*. London: GMC, 1993.
- 3 Royal College of Physicians. *A core curriculum for senior house officers in general (internal) medicine and the medical specialties*. London: RCP, 1996.

### Hillsborough television drama

EDITOR—Reviewing the television dramatisation of Hillsborough, Ed Walker states that a pathologist (identified in the programme as myself) was shown persuading a witness, an off duty Liverpool policeman, to change his evidence about what time he was resuscitating one of the victims.<sup>1</sup> This comment must be rebutted as totally inaccurate. I had no part in obtaining this evidence and the statement of the witness, contrary to that in the programme, contained no designated time. The duty of a pathologist at an inquest is to present the pathological facts and findings and offer unbiased opinions that will assist the coroner and jury. It is incongruous that any pathologist should coerce a witness to change his or her evidence, with the resulting potential for a miscarriage of justice. Purely at the suggestion of the coroner, my telephone conversation with the witness was made to arrange a meeting during the inquest at the Medicolegal Centre, Sheffield. It had no clandestine motives, as portrayed by McGovern, and I was not consulted about the content of the programme. It is also to be regretted that McGovern's carefully contrived editing of my inquest evidence could give the false impression that the mode of death at Hillsborough was "instantaneous, pain free, and with no discomfort." It is unfortunate that Walker's article again highlighted and misconstrued some of these inaccuracies. I have interpreted my representation in this programme as unjust and am seeking a ruling from the Broadcasting Complaints Commission.

At the inquest, medical opinions were expressed on traumatic awareness, the rapidity of unconsciousness, and the timing of death. On the basis of factual evidence, the views of the pathologists involved, and expert neurological opinion, the coroner decided that all those who received fatal injuries were dead (no heartbeat or no cortical activity) by 3.15 pm. Expert pathological testimony on the timing of death can be extremely difficult. Accordingly it is desirable, whenever possible, that other evidence is taken into account. Likewise, the medical declaration of death can be fraught with clinical difficulties. The coroner therefore decided that the medical basis of the impressions of lay witnesses of whether people were alive or dead should be explored diligently. Hence my meeting with the witness. Until seeing McGovern's programme I had no reason to believe that any witness had reservations about the evidence he or she presented. Evidence of one witness, not used by McGovern, states that the clarifications referred to in the programme were based primarily on the witness's improved clinical understanding following his later paramedical training. Most importantly, however, all verbal evidence given at an inquest is on oath and is individually upheld "to be the truth, the whole truth, and nothing but the truth."

I thank those colleagues who, despite McGovern's programme and Walker's article, have not doubted my professional integrity in the matter.

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1 Walker E. A day Sheffield will never forget. *BMJ* 1996; 313:1491. (7 December.)

## Suicides after pregnancy

### Mental health may deteriorate as a direct effect of induced abortion

EDITOR—Mika Gissler and colleagues state that suicides occur more commonly after induced abortion than after a pregnancy resulting in live birth.<sup>1</sup> We linked admissions for miscarriage, induced abortion, and normal delivery to admissions for suicide attempts in our health authority (population 408 000) during 1991-5 (table 1).

The age standardised relative risk of admission for attempted suicide compared with the non-gestational female population (ages 15-49) followed a similar pattern to that reported for mortality from suicide<sup>1</sup>: it was 2.17 (95% confidence interval 1.45 to 3.24,  $P < 0.001$ ) for women admitted for miscarriage, 1.92 (1.29 to 2.88,  $P < 0.001$ ) for those admitted for induced abortion, and 0.94 (0.73 to 1.20, NS) for those admitted for normal delivery.

The age adjusted relative risk of suicide admission for women admitted for miscarriage compared with women admitted for normal delivery was 2.84 (1.67 to 4.81,  $P < 0.001$ ) before the event and 2.29 (1.13 to 4.65,  $P < 0.05$ ) afterwards. For induced abortion the relative risk was 1.72 (0.92 to 3.17, NS) before and 3.25 (1.79 to 5.91,  $P < 0.001$ ) afterwards. The non-significant increase in the induced abortion group before the event could be explained by the fact that six (46%) admissions for attempted suicide occurred within 90 days of the termination. In these cases, attempted suicide may be a consequence of the pregnancy rather than a feature of underlying mental illness. In the miscarriage group three (17%) admissions for attempted suicide occurred within 90 days before the miscarriage compared with none in the normal delivery group.

The increased risk of suicide after an induced abortion may therefore be a consequence of the procedure itself. The non-significant increase in admissions before an induced abortion is possibly explained by factors relating to the pregnancy. Hence this group of women in general does not seem to be at increased risk of suicide. Interestingly, this does not seem to be the case for women who miscarry spontaneously; their suicide rate is greater before miscarriage and reduced afterwards.

Our data suggest that a deterioration in mental health may be a consequential side effect of induced abortion. Furthermore, poor mental health, as measured by suicide admission rates, seems unlikely to predispose to abortion. The relation between mental health and miscarriage, however, requires further investigation.

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### Study did not show association between induced abortion and suicide

EDITOR—Mika Gissler and colleagues' study of suicide after pregnancy in Finland includes a brief but thoughtful discussion of the relation among pregnancy, class, social support, and risk of depression and suicide.<sup>1</sup> Their abstract, however, oversimplifies their findings and misses the point: they found an association between pregnancy and suicide, not induced abortion and suicide. Without a comparison of pregnancies ending in induced versus spontaneous abortion or induced abortion versus delivery, an association between induced abortion and suicide remains conjectural.

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### Authors' reply

EDITOR—In our paper we gave two explanations for women's increased risk of suicide after induced abortion: either induced abortion has negative effects on mental health or both induced abortion and suicide have common risk factors. The findings of Christopher LI Morgan and colleagues do not support the hypothesis that women having induced abortions are more suicidal or have more external risk factors before their pregnancy. However, their data do not exclude the possibility that the (unwanted) pregnancy is the common cause both for the abortion and later for suicide, as Sally Mitchison suggests. This hypothesis is supported by Morgan and colleagues' findings of an increase in admissions for attempted suicide before the induced abortion. It is important, however, to remember that an attempted suicide is different from suicide, as epidemiological research shows. To verify that hypothesis we should compare

**Table 1** Frequency of admissions (rate per 1000 population) for attempted suicide by pregnancy event in women aged 15-49 in South Glamorgan Health Authority, 1991-5

| Age (years) | Before pregnancy event |               |                 | After pregnancy event |               |                 | Total            |                |                 |
|-------------|------------------------|---------------|-----------------|-----------------------|---------------|-----------------|------------------|----------------|-----------------|
|             | Induced abortion       | Miscarriage   | Delivery        | Induced abortion      | Miscarriage   | Delivery        | Induced abortion | Miscarriage    | Delivery        |
| 15-19       | 2/557 (3.6)            | 3/169 (17.8)  | 16/1139 (14.0)  | 6/557 (10.8)          | 2/169 (11.8)  | 3/1139 (2.6)    | 8/557 (14.4)     | 5/169 (29.6)   | 19/1139 (16.7)  |
| 20-24       | 6/767 (7.8)            | 7/445 (15.7)  | 15/3573 (4.2)   | 10/767 (13.0)         | 2/445 (4.5)   | 10/3573 (2.8)   | 16/767 (20.9)    | 9/445 (20.2)   | 25/3573 (7.0)   |
| 25-29       | 3/566 (5.3)            | 4/608 (6.6)   | 7/5632 (1.2)    | 4/566 (7.1)           | 3/608 (4.9)   | 10/5632 (1.8)   | 7/566 (12.4)     | 7/608 (11.5)   | 17/5632 (3.0)   |
| 30-34       | 2/396 (5.1)            | 3/611 (4.9)   | 8/4536 (1.8)    | 0/396                 | 1/611 (1.6)   | 7/4536 (1.5)    | 2/396 (5.1)      | 4/611 (6.5)    | 15/4536 (3.3)   |
| 35-39       | 0/207                  | 1/343 (2.9)   | 3/1645 (1.8)    | 0/207                 | 2/343 (5.8)   | 2/1645 (1.2)    | 0/207            | 3/343 (8.7)    | 5/1645 (3.0)    |
| 40-44       | 0/89                   | 0/105         | 0/303           | 1/89 (11.2)           | 0/105         | 0/303           | 1/89 (11.2)      | 0/105          | 0/303           |
| 45-49       | 0/14                   | 0/23          | 0/38            | 0/14                  | 0/23          | 0/38            | 0/14             | 0/23           | 0/38            |
| Total       | 13/2596 (5.0)          | 18/2304 (7.8) | 49/16 866 (2.9) | 21/2596 (8.1)         | 10/2304 (4.3) | 32/16 866 (1.9) | 34/2596 (13.1)   | 28/2304 (12.2) | 81/16 866 (4.8) |

women with unwanted pregnancies having and not having an induced abortion. We do not have such data; neither, so far as far as we know, has such a study been carried out. An explanation for Morgan and colleagues' findings regarding miscarriages and suicide may be that miscarriages often repeat themselves. Thus what seems to be a suicide attempt before a miscarriage may be an attempt after a previous miscarriage. Regardless of the aetiology, our study indicates that some women are at risk of suicide after an induced abortion. Overall, suicide is rare among women who have had an abortion, and for many women abortion may be an answer to their current problems and a relief. But some need special support, and it is the task of healthcare staff to be sensitive and to identify those women. Rather than being a relief, an abortion for them may be additional proof of their worthlessness and might contribute to suicidality and to the decision to commit suicide. Abortion services should also be organised to ease psychological consequences and regrets.

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It, rather than the Internet, was chosen as the most efficient means of delivering targeted information to the clinician as the information can be structured and condensed for rapid assimilation and yet reflect local circumstances. The information is often referenced as evidence based or consensus based and has been mostly derived from colleagues on the Wirral, who have been most generous in their support.

The project is now being developed by 10 other trusts, under the auspices of the British Association of Medical Managers. Each trust will share the Wirral set of information, adapt it to reflect local circumstances, and then report back to the database's national library. We have been able to show that a Read code can trigger the correct page of Path.Finder to open. The project also provides the opportunity for patient groups to share specific information about relevant services such as leisure and health facilities, disease and drug information, advice on benefits, and other patient support groups. Further modules, including multimedia clinician education, are currently under development. We believe this project will provide a solution to many of the issues raised by Smith's article.

**TD Kennedy** *Director*

**S Magennis** *General practitioner*

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ment is that it "must be able to answer highly complex questions and so will have to be connected to a large valid database."<sup>2</sup> Not only are medical librarians "connected" online to the databases they use, they have a clear understanding of how each one is put together, how it is indexed, and how best to retrieve articles on a particular subject.

There also is the human element. The medical librarian gets to know individual patrons, and is able to anticipate their information needs. Often, medical librarians can put a crucially important article in a physician's hands long before he or she would otherwise know of its existence and before it is cited in any database—because the librarian sees it first and knows who will want it. Medical librarians may not be the computers that Negroponte wished for, but they can "know you, learn about your needs, and understand verbal and non-verbal languages."<sup>3</sup>

I believe that Smith is correct in assuming that there will evolve a "family of tools" to help doctors gather the information they need, but for searching (and sifting through) the medical literature a very good "tool" is already available. Your medical librarian is here to serve you—stop by and introduce yourself.

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## What clinical information do doctors need?

### IT supports clinical decision making

EDITOR—Richard Smith paints a challenging scene for clinical information systems.<sup>1</sup> For many years, Wirral Hospital Trust's information technology strategy has been to support clinical decision making. Wirral is one of the two national pilot sites for the electronic patient record. Junior doctors use the system daily, and requesting pathology and radiology is done through the computer, as is inpatient prescribing.

Two approaches have been adopted. Firstly, we provide information to the clinician when tests are ordered. We have adopted many of the Royal College of Radiology's guidelines and these have been shown to reduce the number of requests for radiology. Using the computerised pharmacy system, we have altered prescribing behaviour and stabilised the drug budget despite an increase of 14% in FCE (finished consultant episode) activity. With the Wolfson Institute in Birmingham we are developing a rules based prescribing system to search the patient's record for specific data and inform the doctor on the safety of the prescription.

The second approach is to deliver structured information to the clinician by using the Path.Finder system, a locally developed information system for general practitioners and hospital clinicians. It has been shown to influence both clinical and referral practice.<sup>2</sup>

- 1 Smith R. What clinical information do doctors need? *BMJ* 1996;313:1062-8. (26 October.)
- 2 Buchan IE, Kennedy TD. Path.Finder: an interactive clinical information system. *Int J Health Care Quality Assurance* 1995;8(7):32-5.

### Excellent retrieval tools are available in libraries

EDITOR—Medical librarians have long understood the problems doctors face in dealing with the questions that arise daily in medical practice. It is perfectly true, as Williamson *et al* conclude, that "science information management is a critical professional skill that is not adequately taught in undergraduate medical education."<sup>1</sup> It is, however, taught in graduate programmes in library and information science.

At this hospital, the doctors who are most often sought out as experts by their colleagues are the ones who come into the library, introduce themselves, and find out what services are available to them. They tell the medical librarian which subject areas are of interest to them, and they take advantage of the library's table of contents service, current awareness database searches, document delivery service, and more. When a question arises in the treatment of a patient, they telephone the library and ask for a literature search.

The medical librarian is responsible for these services and for deciding (with much input from the medical staff) which journal subscriptions to maintain, which books to purchase, and which databases to search. In Richard Smith's description of the characteristics of the ideal "information tool that may transform medicine" the first require-

- 1 Williamson JW, German PS, Weiss R, Skinner EA, Bowes F. Health science information management and continuing education of physicians. A survey of US primary care practitioners and their opinion leaders. *Ann Intern Med* 1989;110:151-60.
- 2 Smith R. What clinical information do doctors need? *BMJ* 1996;313:1062-8. (26 October.)
- 3 Negroponte N. *Being digital*. London: Hodder and Stoughton, 1995:92-3.

### Electronic medical references are being used by practitioners

EDITOR—A common conclusion of literature reviews such as Richard Smith's<sup>1</sup> is that current information systems are not used because they are not based on users' requirements. In fact, electronic medical reference tools driven by users' needs are being developed and used.

The evidence for this development is more likely to be held by commercial organisations than found in publications. *Mentor*, for example, is an immediate use electronic medical reference for primary care team members and junior hospital doctors (jointly developed by Egton Medical Information Systems and Oxford University Press). Evidence based medicine and best practice are incorporated in 2200 succinct, peer reviewed articles which are regularly—sometimes immediately—updated electronically. *Mentor* is linked to patients' records, patient information, protocols, Read codes, and a drug database in more than 2100 general practices serving about 22% of the British population.

Subjective comment on the value of each interaction, requests made to the computer, and the information viewed can be

gathered electronically. New material can be reviewed by users, enabling system validation and personal education.<sup>2</sup>

Recent analysis of 93 481 *Mentor* interactions showed that about a third of general practitioners used the system once per working day (GJ Brooks, primary health care specialists meeting, Cambridge, 1996). A quarter of these interactions took place during the consultation. Two thirds of assessment scores indicated that clinical problems were resolved or performance enhanced through using the system. The figures show real usage and perceived value of a passive information system.

My experience, in developing *Mentor*, is that some doctors will use familiar text based references and others will use electronic sources if they are faster and more up to date. Ease of use and robustness of software are also critical determinants of source chosen.

*Mentor's* development cycle includes continuous investigation of users' needs and resultant refinement of content, software, and software interconnection. The scope and speed of change render standardised objective methods of measuring performance inappropriate and might, as the system is commercial, account for our inability to attract funded independent assessment with publication of results.

Enormous potential exists for providing clinicians with layered electronic medical references that link local resources available for immediate use with access to more remote information. Smith's vision can be realised in Britain only if academics, the government, publishers, educators, and system suppliers pragmatically collaborate to prevent a further "missed opportunity."

**Gordon Brooks\*** *Medical systems designer and developer*

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\*Dr Brooks is an employee of Egton Medical Information Systems.

- 1 Smith R. What clinical information do doctors need? *BMJ* 1996;313:1062-8. (26 October.)
- 2 Westerman C, Brooks GJ, Longmore JM. Information overload. *BMJ* 1993;307:679.

### Information lines run by doctors are useful

EDITOR—Richard Smith<sup>1</sup> clearly points out the main issues about information needs of doctors. Studies show that doctors need information during patients' visits and that they prefer to get answers from colleagues.

To address these problems some Italian physicians set up a private medical information service, "Doctorline," accessible five days a week through a toll free telephone number. It uses computerised databases on CD ROM (Medline, Micromedex-CCIS, Embase), books, serials, bulletins, international formularies, and its own files and is staffed by suitably trained doctors from different specialties.

Since 1991, Doctorline was available to 52 180 Italian physicians, selected according to specialty and provided with an identification card by pharmaceutical companies who

sponsored the service (without interfering on the scientific side).

In this period 60 653 calls were received (nearly 12 000 calls a year; 51 per day and 3.6 per physician), of which 24 868 (41%) concerned clinical problems; 10 918 (18%) pharmacological issues; 9098 (15%) requests for full text articles; 5458 (9%) specialised centers, congresses, and legislation; 6065 (10%) service activities and diagnostic and clinical instrumentation; and 4246 (7%) were follow up calls. General practitioners had the highest call rate (16 840 calls, 28%), followed by cardiologists (10 815; 18%), orthopaedic specialists or rheumatologists (8615, 14%), gastroenterologists (7960, 13%), and urologists (5446, 9%). Dermatologists (3304), gynaecologists (3416), clinical pharmacists (1629), internists (1364), and chest physicians (1264) each made less than 5% of calls. General practitioners needed more information on drugs than did other doctors.

The service is used mainly during surgery hours, and 40% of questions concern clinical problems; 20% of questions are related to drugs. Doctors who called Doctorline felt comfortable discussing clinical issues directly with a colleague.

It is difficult to provide doctors with scientifically based answers to "questions generated in consultations"; we have no data regarding if and how these answers can "lead to better patient outcomes or better doctors." We think it is useful to develop independent services, in which trained physicians use electronic information technologies to provide scientifically based answers.

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- 1 Smith R. What clinical information do doctors need? *BMJ* 1996;313:1062-8. (26 October.)

### Few doctors are expert at evaluating information

EDITOR—In the inaugural article in the Information in Practice series,<sup>1</sup> we were especially pleased to see that Richard Smith used our "usefulness equation"<sup>2</sup> to answer clinicians' information needs. We would like to expand on our perspective by commenting on the low usefulness of some information sources commonly used by doctors.

Clinicians often turn to "expert based" sources (colleagues, continuing medical education lectures, textbooks, and standard journal reviews) for new information. As the usefulness formula states:

$$\text{Usefulness of medical information} = (\text{relevance} \times \text{validity}) / \text{work to access}$$

These sources are potentially useful because the "work" factor to access the information is low, but the validity and relevance of the

information that they provide may be in doubt.

Most doctors are good at diagnosing disease and performing procedures because of their accumulated clinical experience, but because critical appraisal has been added only recently to the medical school curriculum, few doctors are expert at evaluating the primary literature—performing a "validity" assessment. As a result, expert based therapeutic recommendations often rely only on clinical experience rather than on a critical evaluation of the available evidence.

More importantly, the "relevance" of the information that these sources provide also may be in question. Clinical evidence can be categorised as either patient oriented or disease oriented.<sup>3</sup> "Patient oriented evidence that matters" considers outcomes that patients would care about (morbidity, mortality, quality of life) and that would "matter" because the interventions should change the way clinicians practice. Disease oriented evidence is the large amount of intermediate or surrogate endpoint information that makes up the knowledge base of almost all practising clinicians. Reliance on disease oriented information is the main reason, therefore, that most information found in expert based systems is not relevant, and why it is likely not to be useful to either clinicians or their patients.

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- 1 Smith R. What clinical information do doctors need? *BMJ* 1996;313:1062-8. (26 October.)
- 2 Shaughnessy AF, Slawson AF, Bennett JH. Becoming an information master: a guidebook to the medical information jungle. *J Fam Pract* 1994;39:489-99.
- 3 Slawson DC, Shaughnessy AF, Bennett JH. Becoming a medical information master: feeling good about not knowing everything. *J Fam Pract* 1994;38:505-13.

### Hospital libraries provide crucial information

EDITOR—Richard Smith<sup>1</sup> has unfortunately missed a key article, the Rochester study.<sup>2</sup> Doctors were asked to request some information related to a current clinical case and then to evaluate its impact on the care of their patients. Of the 208 doctors participating in the survey, 80% said that, as a result of the information provided by the hospital library, they probably or definitely handled some aspect of patient care differently than they would have otherwise done. Changes in several areas of care were reported: diagnosis (29%), choice of tests (51%), choice of drugs (45%), reduced length of stay (19%), and advice given to the patient (72%). The doctors also said that the information provided by the library helped them to avoid the following: hospital admission (12%), patient mortality (19%), hospital acquired infection (8%), surgery (21%), and additional tests or procedures (49%). In general, the doctors rated the information provided by the library more highly than that provided

by other information sources such as diagnostic imaging, laboratory tests, and discussions with colleagues.

The Rochester study confirmed earlier studies that information provided by hospital libraries is perceived by doctors as having an important impact on clinical decision making. With the advent of evidence based medicine the importance of getting the right piece of information into the hands of the right doctor at the right time, for quality patient care, cannot be overemphasised.

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- 1 Smith R. What clinical information do doctors need? *BMJ* 1996;313:1062-8. (26 October.)
- 2 Marshall J. The impact of the hospital library on clinical decision making: the Rochester study. *Bull Med Lib Assoc* 1992;80:169-78.

### Citing old research may mislead readers

**EDITOR**—Richard Smith has broken a fundamental rule by not citing the original authors from whom he drew information.<sup>1</sup> Instead, he quoted from an author<sup>2</sup> who cited the three original papers.<sup>3-5</sup> This suggests that he has not read the original articles. Moreover, it may have misled readers. In citing this paper from 1995, Smith implied that this research on costs and time spent on information handling took place in the 1990s—but the three papers cited date from 1966, 1970, and 1973. I find it hard to believe that nothing has changed in costs as well as time spent on information handling over the past 30 years. In this way, Smith has contributed to his own statement that “some of the information in doctors' heads is out of date and wrong.”

**Anita Verhoeven** *Research librarian*

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- 1 Smith R. What clinical information do doctors need? *BMJ* 1996;313:1062-8.
- 2 Hersch WR, Lunin LF. Perspectives on medical informatics: information technology in health care. Introduction and overview. *J Am Soc Inf Sci* 1995;46:726-8.
- 3 Jydstrup RA, Gross MJ. Cost of information handling in hospitals. *Health Serv Res* 1966;1:235-71.
- 4 Mamlin Jo, Baker DH. Combined time-motion and work sampling study in a general medicine clinic. *Med Care* 1973;11:449-56.
- 5 Richart RH. Evaluation of a medical data system. *Comput Biomed Res* 1970;3:415-25.

### Management of needlestick injuries would be easier if consent for “donor” testing was not necessary

**EDITOR**—T J Neal and G Harvey's letter<sup>1</sup> highlights the need for the management of needlestick injuries to be reconsidered in the light of evidence that prompt administration of antiretroviral treatment provides substantial benefit against HIV infection.<sup>2</sup> We have recently been involved in two situations in which prompt testing of blood from the potentially infected source (“donor”) could have changed management. As Neal and Harvey describe, current practice holds

that donor blood cannot be tested without consent, and legal proceedings for assault may be instituted if consent is not obtained.

**Case 1**—A healthcare worker received a considerable injury during an emergency surgical procedure. The patient was an injecting drug user and, after recovering from surgery, was counselled, tested for HIV infection, and found to be positive. The healthcare worker started antiretroviral treatment. Testing of the donor's blood without immediate consent could have resulted in earlier treatment.

**Case 2**—A member of the public was assaulted by an injecting drug user with a needle, which caused a penetrating wound to the chest. The donor, who was then untraceable, was known to be actively injecting; to have been in prison recently, where needle sharing is often practised; and to be positive for hepatitis C antibody. After counselling of the injured subject empirical antiretroviral treatment was started. A recent blood sample from the donor was known to be in store, but retrospective testing for HIV infection was not possible because of the reasons described above. The result of such testing might well have shown that antiretroviral treatment was unnecessary.

Antiretroviral treatment after high risk injuries should be started immediately, but potentially serious side effects and substantial costs must be taken into account. In one of these two cases prophylaxis might have been started earlier, and in the other it might not have been necessary, if some legally acceptable mechanism for testing the donors' blood without their immediate consent had been possible in these special circumstances.

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- 1 Neal TJ, Harvey G. Post-exposure prophylaxis after needle stick injuries would require change in management. *BMJ* 1996;313:1335. (23 November.)
- 2 Centers for Disease Control and Prevention. Case-control study of HIV sero-conversion in health care workers after exposure to HIV infected blood—France, United Kingdom, and United States, January 1988–August 1994. *MMWR* 1995;44:929-33.

### Sri Lankan refugees are not at risk of persecution

**EDITOR**—The reference made to Sri Lankans seeking refugee status in the UK<sup>1</sup> cannot be allowed to pass, as it is very misleading. To talk about arrests, detention without trial, and torture of Tamils in Colombo is to disregard the truth and echo the propaganda of the Liberation Tigers of Tamil Eelam, a ruthless terrorist organisation that is prepared to kill any opponent—Sinhala, Moslem, or Tamil. While it is true that there is a war against this terrorist organisation in the north and east of Sri Lanka, the rest of the island is safe for people of all communities. If people are arrested and detained it is purely to protect the lives of innocent

civilians of all communities, including the Tamils, from terrorist outrages such as the bombing of the Central Bank Building and a passenger train in Colombo, resulting in the loss of hundreds of innocent lives, both Sinhala and Tamil. The government has a duty to prevent such incidents in the future.

One has only to look at the thousands of Tamils who live quite happily outside the war zone to realise the fallaciousness of the claim made by the Refugee Council and cited in this article. These constitute nearly 60% of all Tamils in Sri Lanka, including businessmen, professionals, and politicians, as well as ordinary people. Perhaps the writer is unaware of the fact that the leaders of all the constitutional Tamil political parties live in Colombo and are provided with state protection against attempted assassination by the Tamil Tigers; this has happened to many of them in the past. The minister of foreign affairs of the present government is also a Tamil.

The so called refugees from Sri Lanka are at best economic refugees. Some are sent here by the Tigers to raise funds. If they are at risk of persecution in Colombo, how do many of these so called refugees go back to Sri Lanka regularly for holidays?

When we separate the actuality of the situation in Sri Lanka from the propaganda of the Tigers, we can clearly see that the policy of the British government to refuse granting refugee status to those coming from Sri Lanka is fully justified.

**Signed by 14 Sri Lankan doctors working in Britain**

- 1 Bunce C. Psychiatrists plan network to help asylum seekers. *BMJ* 1997;314:535 (22 February).

### Advice to authors

*We receive more letters than we can publish: we can currently accept only about one third. We prefer short letters that relate to articles published within the past four weeks. We also publish some “out of the blue” letters, which usually relate to matters of public policy.*

*When deciding which letters to publish we favour originality, assertions supported by data or by citation, and a clear prose style. Letters should have fewer than 400 words (please give a word count) and no more than five references (including one to the BMJ article to which they relate); references should be in the Vancouver style. We welcome pictures.*

*Letters should be typed and signed by each author, and each author's current appointment and address should be stated. We encourage you to declare any conflict of interest. Please enclose a stamped addressed envelope if you would like to know whether your letter has been accepted or rejected.*

*We may post some letters submitted to us on the world wide web before we decide on publication in the paper version. We will assume that correspondents consent to this unless they specifically say no.*

*Letters will be edited and may be shortened.*